PREVALENCE OF FATTY LIVER CHANGES AND OTHER VARIOUS ADVERSE EFFECTS IN PATIENTS TAKING TABLET ATORVASTATIN – A CROSS SECTIONAL OBSERVATIONAL STUDY

DR.R.THANASEKARAN (FINAL YEAR PG MD PHARMACOLOGY),
PROF.DR.B.VASANTHI
INSTITUTE OF PHARMACOLOGY,
MADRAS MEDICAL COLLEGE, PARK TOWN, CHENNAI.
THE TAMIL NADU DR MGR MEDICAL UNIVERSITY

ABSTRACT

OBJECTIVES

To assess the prevalence of fatty liver changes in patients taking tablet Atorvastatin.

BACKGRUND

Statins are the most commonly prescribed drug in the world, used in many chronic conditions like cardiovascular diseases, cerebrovascular diseases, peripheral vascular diseases, and diabetes mellitus for long duration.

Statins acts by inhibiting the HMG CO-A reductase enzyme thereby inhibits the conversion of HMG CO-A to mevalonate, which is the precursor for cholesterol and thereby reduces cholesterol production.Cholesterol is an important constituent of plasma cell membrane of all the cells and also present in myelin sheath of nervous cell. Cholesterol is the precursor of all the steroid hormones, glucocorticoids, mineralocorticoids, androgens, estrogens, progesterone, bile acids and vitamin D.

Statins by inhibiting cholesterol synthesis may affect normal plasma membrane function of many cell types and may produce chronic muscle pain, fatigue, joint pain, numbness, memory problems, mood disorders, depression, sleep disturbance, impaired immune function and impotence. Coenzyme-Q is a important component of electron transport chain in mitochondria which is important to produce energy in the form of ATP and it is a key mitochondrial anti oxidant. Statins by inhibiting Coenzyme-Q production may produce myalgia, chronic fatigue syndrome, hypertension, cardiomyopathy.

Since both cholesterol and co enzyme Q production is inhibited by statins these may produce various adverse effects.

Fatty liver (or) Hepatic steatosis is an abnormal accumulation of fat in liver cells. Statins by inhibiting cholesterol synthesis may produce fatty liver changes. Individuals with fatty liver changes are usually asymptomatic at initial stages, but this may progress to Non alcoholic steatohepatitis (NASH) , Cirrhosis, Decompensated liver disease (DCLD) and Hepato cellular carcinoma at later stages.

This study will look for the prevalence of fatty liver in patients taking tablet Atorvastatin. This will help to restrict the use of statins in liver disease and for longer duration and to include fatty liver in the adverse drug profile of statins.

METHODS

An Observational, Cross sectional study in patients taking tab. Atorvastatin was conducted in patients attending OPD of cardiology, internal medicine and diabetology, Rajiv Gandhi government general hospital, Chennai. The participants (n= 201) were assessed by ultrasound to see Fatty liver changes and liver function test, lipid profile values. A questionnaire was also given to the patients to assess the symptoms of various adverse effects of Atorvastatin.

RESULTS

Out of 201 patients taking Atorvastatin >2 years, 67 patients (33.33%) showed fatty liver changes in ultrasonogram. Percentage of fatty liver positive patients are more among those who take statins for > 4 years and it increases with the duration of treatment. Among diabetic patients fatty liver positive percentage is 35.65% and among non diabetics it is 30.23% (p=0.51). Significant elevation of SGOT and SGPT was seen in fatty liver positive patients (p=0.0002). In the questionnaire, most of the patients had fatigue (71) and myalgia (58). Adverse effects were analysed with WHO scale and most of the ADR comes under possible category and in modified Hartwig Siegel scale most of the ADR comes in mild category.

CONCLUSION

From this study we conclude that inhibition of cholesterol synthesis by statins increases the synthesis of Fatty acids. The excess Fatty acids get deposited in visceral organs especially liver as ectopic fat causing Fatty liver changes. This occurs over long term use of statins. Therefore the use of statins should be restricted with proper indications and for short term.

KEY WORDS

Fatty liver, hepatic steatosis, atorvastatin, HMG CO A reductase, cholesterol